

Specifications / ABR Series

Gearbox Performance

Model No.		Stage	Ratio ^A	ABR042	ABR060	ABR060A	ABR090	ABR090A	ABR115	ABR115A	ABR142	ABR142A	ABR180	ABR220	
Nominal Output Torque T_{2N}	Nm	1	3	9	36	-	90	-	195	-	342	-	588	1,140	
			4	12	48	-	120	-	260	-	520	-	1,040	1,680	
			5	15	60	-	150	-	325	-	650	-	1,200	2,000	
			6	18	55	-	150	-	310	-	600	-	1,100	1,900	
			7	19	50	-	140	-	300	-	550	-	1,100	1,800	
			8	17	45	-	120	-	260	-	500	-	1,000	1,600	
			9	14	40	-	100	-	230	-	450	-	900	1,500	
			10	14	60	-	150	-	325	-	650	-	1,200	2,000	
			12	-	55	-	150	-	310	-	600	-	1,100	1,900	
			14	-	42	-	140	-	300	-	550	-	1,100	1,800	
		16	-	45	-	120	-	260	-	500	-	1,000	1,600		
		20	-	40	-	100	-	230	-	450	-	900	1,500		
		2	12	12	-	-	-	-	-	-	-	-	-	-	-
			15	14	-	-	-	-	-	-	-	-	-	-	-
			16	15	-	-	-	-	-	-	-	-	-	-	-
			20	14	-	-	-	-	-	-	-	-	-	-	-
			25	15	60	60	150	150	325	325	650	650	1,200	2,000	
			28	19	50	50	140	140	300	300	550	550	1,100	1,800	
			30	20	55	55	150	150	310	310	600	600	1,100	1,900	
			32	17	45	45	120	120	260	260	500	500	1,000	1,600	
			35	19	50	50	140	140	300	300	550	550	1,100	1,800	
			40	17	45	45	120	120	260	260	500	500	1,000	1,600	
			45	14	40	40	100	100	230	230	450	450	900	1,500	
			48	-	-	55	150	150	310	310	600	600	1,100	1,900	
			50	14	60	60	100	100	230	230	650	650	1,200	2,000	
			60	20	55	55	150	150	310	310	600	600	1,100	1,900	
			64	-	-	45	120	120	260	260	500	500	1,000	1,600	
			70	19	50	50	140	140	300	300	550	550	1,100	1,800	
			80	17	45	45	120	120	260	260	500	500	1,000	1,600	
			90	14	40	40	100	100	230	230	450	450	900	1,500	
			100	14	40	60	150	150	325	325	650	650	1,200	2,000	
			120	-	-	55	150	150	310	310	600	600	1,100	1,900	
140	-	-	50	140	140	300	300	550	550	1,100	1,800				
160	-	-	45	120	120	260	260	500	500	1,000	1,600				
180	-	-	40	100	100	230	230	450	450	900	1,500				
200	-	-	40	100	100	230	230	450	450	900	1,500				
Emergency Stop Torque T_{2NOT}^B	Nm	1,2	3~200	3 times of Nominal Output Torque											
Nominal Input Speed n_{1N}	rpm	1,2	3~200	5,000	5,000	5,000	4,000	4,000	4,000	4,000	3,000	3,000	3,000	2,000	
Max. Input Speed n_{1B}	rpm	1,2	3~200	10,000	10,000	10,000	8,000	8,000	8,000	8,000	6,000	6,000	6,000	4,000	
Micro Backlash P0	arcmin	1	3~20	-	-	-	≤2	-	≤2	-	≤2	-	≤2	≤2	
		2	12~200	-	-	-	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	
Reduced Backlash P1	arcmin	1	3~20	≤4	≤4	-	≤4	-	≤4	-	≤4	-	≤4	≤4	
		2	12~200	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7	
Standard Backlash P2	arcmin	1	3~20	≤6	≤6	-	≤6	-	≤6	-	≤6	-	≤6	≤6	
		2	12~200	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9	
Torsional Rigidity	Nm/arcmin	1,2	3~200	3	7	7	14	14	25	25	50	50	145	225	
Max. Radial Load F_{2rB}^C	N	1,2	3~200	780	1,530	1,530	3,250	3,250	6,700	6,700	9,400	9,400	14,500	50,000	
Max. Axial Load F_{2aB}^C	N	1,2	3~200	390	765	765	1,625	1,625	3,350	3,350	4,700	4,700	7,250	25,000	
Service Life ^D	hr	1,2	3~200	20,000											
Efficiency η	%	1	3~20	≥95%											
		2	12~200	≥92%											
Weight	kg	1	3~20	0.9	2.1	-	6.4	-	13	-	24.5	-	51	83	
		2	12~200	1.2	1.5	2.7	7.8	7.9	14.2	15.9	27.5	29.6	54	95	
Operating Temp	°C	1,2	3~200	-10°C~+90°C											
Lubrication		1,2	3~200	Synthetic lubrication oils											
Degree of Gearbox Protection		1,2	3~200	IP65											
Mounting Position		1,2	3~200	all directions											
Noise ($n_1=3000\text{rpm}, i=10, \text{No load}$) ^E	dB(A)	1,2	3~200	≤61	≤63	≤65	≤65	≤68	≤68	≤70	≤70	≤72	≤72	≤74	

A. Ratio ($i=N_{in}/N_{out}$)B. Max. acceleration torque $T_{2B} = 60\%$ of T_{2NOT}

C. Applied to the output shaft center at 100 rpm

D. For continuous operation, the service life time is less than 10,000 hrs

E. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at 3,000 rpm no loading.

By lower ratio and/or higher RPM, the noise level could be 3 to 5 dB higher

Gearbox Inertia

Model No.		Stage	Ratio	ABR042	ABR060	ABR060A	ABR090	ABR090A	ABR115	ABR115A	ABR142	ABR142A	ABR180	ABR220	
Mass Moments of Inertia J_i	kg · cm ²	1	3~10	0.09	0.35	–	2.25	–	6.84	–	23.4	–	68.9	135.4	
			12~20	–	0.07	–	1.87	–	6.25	–	21.8	–	65.6	119.8	
		2	12~20	0.09	–	–	–	–	–	–	–	–	–	–	–
			25~90	0.09	0.09	0.35	0.35	2.25	2.25	6.84	6.84	23.4	23.4	68.9	68.9
			48, 64	–	–	0.07	0.31	1.87	1.87	6.25	6.25	21.8	21.8	65.6	65.6
			100~200	–	–	0.07	0.31	1.87	1.87	6.25	6.25	21.8	21.8	65.6	65.6